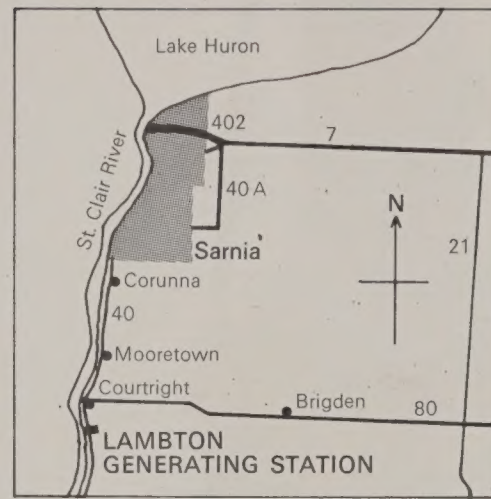
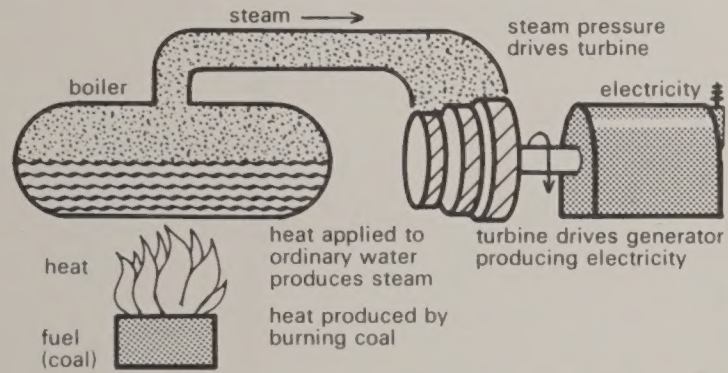


conventional power plant



Visiting Lambton Generating Station

Special group tours of Lambton can be arranged by appointment. For information call any Ontario Hydro office, or Lambton Generating Station at Courtright 867-2663.

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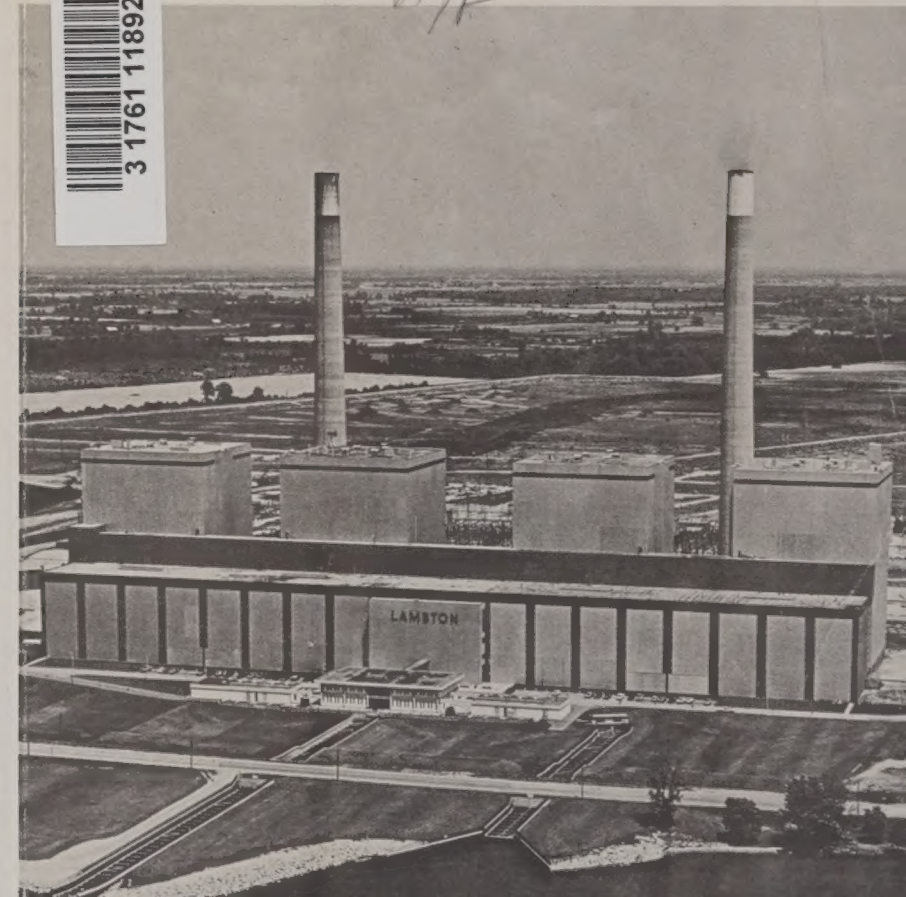
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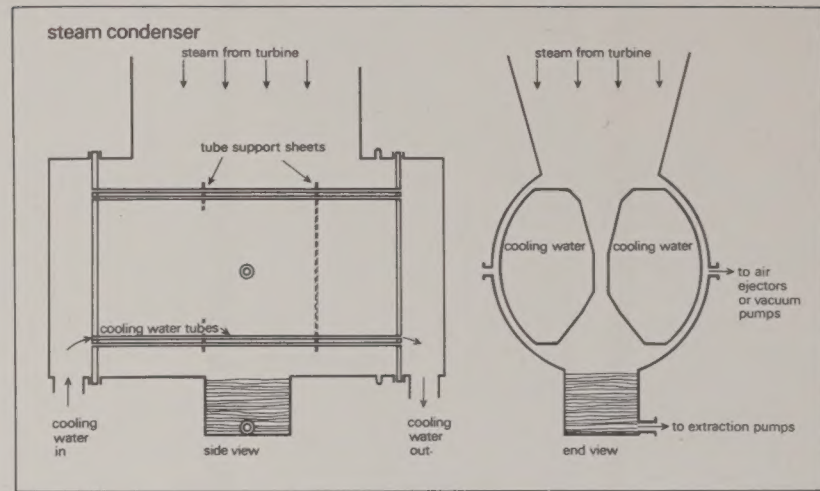
Lambton generating station

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Lambton

During the last half century, Ontario Hydro has progressively harnessed the water-power resources of the province and today operates hydro-electric plants on the major rivers. Only a few river sites remain which could be considered capable of economic development to produce electricity.

To keep pace with the expanding economy, Hydro must more than double its generating capacity approximately every ten years. Ontario Hydro is meeting this requirement by constructing large-scale fossil-fuelled and nuclear thermal electric plants.

Lambton Generating Station is among the largest coal-fired stations in North America. With a total capacity of 2,000,000 kilowatts — greater than the combined output of the Canadian plants at Niagara — it can produce enough power to meet the requirements of 1.3 million homes. Electricity from Lambton is fed into Ontario Hydro's high voltage network which serves power users across the province.

Facts About Lambton

In-service date: After more than five years planning and construction, first power was produced by Lambton in the Spring of 1969. Two units will be brought into service during 1969; two in 1970.

Principal Structures: The main powerhouse is a steel-framed, aluminum clad structure 940 feet long by 250 feet wide. The highest point of the structure, the boiler-house roof, stands 220 feet above ground. A two-storey administration block, 175 by 40 feet, is connected to the powerhouse by an enclosed corridor.

Facts About Lambton

Steam Generators: Four boilers, each capable of producing 3,600,000 pounds of steam per hour at a pressure of 2,350 pounds per square per square inch. Steam is superheated and reheated to 1,000 degrees Fahrenheit.

Turbine Generators: Four 500,000 kilowatt units operating at 3,600 revolutions per minute.

Electrical Power: Total station capacity 2,000,000 kilowatts. Electricity is generated at 24,000 volts and transmitted to the Ontario Hydro grid at 230,000 volts.

Staff: Lambton is designed to be operated by a staff of approximately 220.

Computers at Lambton

Because of its large size, Lambton is able to take advantage of the economies and efficiencies of computerization on a scale not practical in smaller stations. The station computer constantly takes measurements at hundreds of points in the complex system and provides operators with performance information and warnings of any deviations from normal conditions.

Moving the 760 tons of coal burnt by the boilers each hour at full capacity is also an automated operation. A specially designed coal-handling system, controlled by another computer, maintains the 2,500,000-ton stockpile and transfers coal to the boilers.

Coal is delivered to the site in self-unloading ships and placed on the stockpile by the conveyor system at a rate of 6,000 tons per hour. Other conveyor belts carry coal at rates up to 2,000 tons per hour to bunkers at each boiler. The computer measures the level in each bunker and transfers coal as needed.

Water

Like other Ontario Hydro thermal stations, Lambton has two separate water systems — a closed system within the plant to produce steam, and a flow-through system using river water for cooling.

Water used in the steam cycle is used over and over again and needs only minor replenishment. Cooling water, drawn from the St. Clair River at a rate of 536,000 gallons per minute of full operation, passes quickly through the condenser circuits and is returned to the river slightly warmer but in no way contaminated by its passage through the plant. There is no contact between river water and water used to produce steam.

Air Quality Control

No thermal-electric generating station can be operated without some effect on the immediate environment. But at Lambton as at other Ontario Hydro thermal stations every practical step has been taken to minimize pollution.

Electrostatic precipitators trap 99.5 per cent of the dust in the gases leaving the boiler and store it for later removal. The combustion gases themselves are safely dispersed into the upper atmosphere by way of the 550 feet high stacks.

When climate conditions are such that dispersal of gases cannot be achieved within satisfactory limits, the station is equipped to change quickly to a special and much more expensive coal which produces less gases when burned.